

**SECTION 08331**  
**OVERHEAD COILING DOORS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes the following types of overhead coiling doors:
  - 1. Service doors.
  - 2. Insulated service doors.
  - 3. Fire-rated doors.
- B. Related Sections:
  - 1. Division 8 Section "Door Hardware" for lock cylinders and keying.
  - 2. Division 16 for electrical service and connections for powered operators, and accessories.

**1.3 PERFORMANCE REQUIREMENTS**

- A. Structural Performance: Provide overhead coiling doors capable of withstanding the effects of gravity loads and the following loads and stresses without evidencing permanent deformation of door components:
  - 1. Wind Load: Uniform pressure (velocity pressure) of 40 lbf/sq. ft., acting inward and outward.
- B. Operation-Cycle Requirements: Design overhead coiling door components and operator to operate for not less than 20,000 cycles.

**1.4 SUBMITTALS**

- A. Product Data: For each type and size of overhead coiling door and accessory. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes. Provide roughing-in diagrams, operating instructions, and maintenance information. Include the following:
  - 1. Setting drawings, templates, and installation instructions for built-in or embedded anchor devices.
  - 2. Summary of forces and loads on walls and jambs.
  - 3. Motors: Show nameplate data and ratings; characteristics; mounting arrangements; size and location of winding termination lugs, conduit entry, and grounding lug; and coatings.
  - 4. Fire-Rated Doors: Information describing fire-release system, including testing and resetting instructions.
- B. Shop Drawings: For special components and installations not dimensioned or detailed in manufacturer's data sheets.
  - 1. Wiring Diagrams: Detail wiring for power, signal, and control systems. Differentiate between manufacturer-installed and field-installed wiring and between components provided by door manufacturer and those provided by others.
- C. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who is an authorized representative of the overhead coiling door manufacturer for both installation and maintenance of units required for this Project.
- B. Source Limitations: Obtain overhead coiling doors through one source from a single manufacturer.
  - 1. Obtain operators and controls from the overhead coiling door manufacturer.
- C. Fire-Rated Door Assemblies: Provide assemblies complying with NFPA 80 that are identical to door and frame assemblies tested for fire-test-response characteristics per UL 10b, and that are labeled and listed for fire ratings indicated by UL, FM, ITS/Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.
- D. Listing and Labeling: Provide electrically operated fixtures specified in this Section that are listed and labeled.
  - 1. The Terms "Listed" and "Labeled": As defined in NFPA 70, Article 100.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
  - 1. Atlas Door Corp.; Div. of Clopay Building Products Co.
  - 2. The Cookson Company.
  - 3. Cornell Iron Works Inc.
  - 4. Overhead Door Corporation.
  - 5. Pacific Rolling Door Co.
  - 6. Raynor Garage Doors.

### 2.2 DOOR CURTAIN MATERIALS AND CONSTRUCTION

- A. Door Curtain: Fabricate overhead coiling door curtain of interlocking slats, designed to withstand wind loading indicated, in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of material thickness recommended by door manufacturer for performance, size, and type of door indicated, and as follows:
  - 1. Steel Door Curtain Slats: Structural-quality, cold-rolled galvanized steel sheets complying with ASTM A 653, with G90 (ASTM A 653M, with Z275) zinc coating.
    - a. Provide manufacturer's standard flat-profile slats.
  - 2. Insulation: Fill slat with manufacturer's standard rigid cellular polystyrene or polyurethane-foam-type thermal insulation complying with maximum flame-spread and smoke-developed indices of 75 and 450, respectively, according to ASTM E 84. Enclose insulation completely within metal slat faces.
  - 3. Inside Curtain Slat Face: To match material of outside metal curtain slat and as follows:
    - a. Galvanized Steel Sheet Thickness: Not less than 0.028 inch (0.7 mm).
- B. Windows: Provide windows of 1/4-inch clear, transparent acrylic sheet, of size and in arrangement shown. Set glazing in vinyl, rubber or neoprene glazing channel secured to curtain slats.
- C. Endlocks: Malleable-iron castings galvanized after fabrication, secured to curtain slats with galvanized rivets, or high-strength nylon. Provide locks on not less than alternate curtain slats for curtain alignment and resistance against lateral movement.
- D. Windlocks: Malleable-iron castings secured to curtain slats with galvanized rivets or high-strength nylon, as required to comply with wind load.

- E. Bottom Bar: Consisting of 2 angles, each not less than 1-1/2 by 1-1/2 by 1/8 inch (38 by 38 by 3 mm) thick, either galvanized or stainless-steel or aluminum extrusions to suit type of curtain slats.
  - 1. Provide motor-operated doors with combination bottom astragal and sensor edge.
- F. Curtain Jamb Guides: Fabricate curtain jamb guides of steel angles, or channels and angles, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Build up units with not less than 3/16-inch- (5-mm-) thick, galvanized steel sections complying with ASTM A 36 (ASTM A 36M), and ASTM A 123. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overtravel of curtain and a continuous bar for holding windlocks.

## 2.3 HOODS AND ACCESSORIES

- A. Hood: Form to entirely enclose coiled curtain and operating mechanism at opening head and act as weatherseal. Contour to suit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Provide closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting projecting beyond wall face. Provide intermediate support brackets as required to prevent sag.
  - 1. Fabricate steel hoods, for steel doors, of not less than 0.028-inch (0.7-mm) thick, hot-dip galvanized steel sheet with G90 (Z275) zinc coating, complying with ASTM A 653 (ASTM A 653M).
  - 2. Include automatic drop baffle to guard against passage of smoke or flame.
  - 3. Shape: Round.
- B. Smoke Seals: Provide UL-listed and -tested smoke-seal perimeter gaskets.
- C. Weatherseals: Provide replaceable, adjustable, continuous, compressible weather-stripping gaskets fitted to bottom and at top of exterior doors, unless otherwise indicated. At door head, use 1/8-inch- (3-mm-) thick, replaceable, continuous sheet secured to inside of curtain coil hood.
  - 1. Provide motor-operated doors with combination bottom weatherseal and sensor edge.
  - 2. In addition, provide replaceable, adjustable, continuous, flexible, 1/8-inch- (3-mm-) thick seals of flexible vinyl, rubber, or neoprene at door jambs for a weathertight installation.
- D. Push/Pull Handles: For push-up-operated or emergency-operated doors, provide galvanized steel lifting handles on each side of door.
- E. Slide Bolt: Fabricate with side locking bolts to engage through slots in tracks for locking by padlock, located on both left and right jamb sides, operable from coil side.
- F. Fabricate locking device assembly with lock, spring-loaded dead bolt, operating handle, cam plate, and adjustable locking bar to engage through slots in tracks.
  - 1. Locking Bars: Single-jamb side, operable from inside and outside.
  - 2. Lock cylinder is specified in another Division 8 Section.
- G. Chain Lock Keeper: Suitable for padlock.
- H. Where door unit is power operated, provide safety interlock switch to disengage power supply when door is locked.
- I. Provide automatic-closing device inoperative during normal door operations, with governor unit complying with requirements of NFPA 80, with easily tested and reset release mechanism, and designed to be activated by the following:
  - 1. Governor: Oscillating type.
  - 2. Manufacturer's standard UL-labeled heat detector and door-holder-release devices.

## 2.4 COUNTERBALANCING MECHANISM

- A. General: Counterbalance doors by means of adjustable-tension steel helical torsion spring, mounted around a steel shaft and contained in a spring barrel connected to door curtain with

required barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.

- B. Counterbalance Barrel: Fabricate spring barrel of hot-formed, structural-quality, welded or seamless carbon-steel pipe, of sufficient diameter and wall thickness to support rolled-up curtain without distortion of slats and to limit barrel deflection to not more than 0.03 in./ft. (2.5 mm/m) of span under full load.
- C. Provide spring balance of one or more oil-tempered, heat-treated steel helical torsion springs. Size springs to counterbalance weight of curtain, with uniform adjustment accessible from outside barrel. Provide cast-steel barrel plugs to secure ends of springs to barrel and shaft.
- D. Fabricate torsion rod for counterbalance shaft of cold-rolled steel, sized to hold fixed spring ends and carry torsional load.
- E. Brackets: Provide mounting brackets of manufacturer's standard design, either cast-iron or cold-rolled steel plate with bell-mouth guide groove for curtain.

## 2.5 FINISHES, GENERAL

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.6 STEEL AND GALVANIZED STEEL FINISHES

- A. Powder-Coat-Applied Finish: Apply manufacturer's standard powder-coat-applied finish consisting of primer and topcoat(s) according to coating manufacturer's written instructions for cleaning, pretreatment, application, thermosetting, and minimum dry film thickness.
  - 1. Color and Gloss: Match Construction Manager's sample.

## 2.7 MANUAL DOOR OPERATORS

- A. Provide manual operators, unless electric door operators are indicated. When not shown, provide chain-hoist operator unit.
- B. Push-up Operation: Design counterbalance mechanism so required lift or pull for door operation does not exceed 25 lbf (111 N).
- C. Chain-Hoist Operator: Provide manual chain-hoist operator consisting of endless steel hand chain, chain pocket wheel and guard, and gear-reduction unit with a maximum 35-lbf (155-N) effort for door operation. Provide alloy steel hand chain with chain holder secured to operator guide.

## 2.8 ELECTRIC DOOR OPERATORS

- A. General: Provide electric door operator assembly of size and capacity recommended and provided by door manufacturer for door and operational life specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, remote-control stations, control devices, integral gearing for locking door, and accessories required for proper operation.
- B. Comply with NFPA 70.
- C. Disconnect Device: Provide hand-operated disconnect or mechanism for automatically engaging sprocket-chain operator and releasing brake for emergency manual operation

while disconnecting motor, without affecting timing of limit switch. Mount disconnect and operator so they are accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.

- D. Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency auxiliary operator.
- E. Provide control equipment complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6, with NFPA 70 Class 2 control circuit, maximum 24-V, ac or dc.
- F. Door-Operator Type: Provide wall-, hood-, or bracket-mounted, jackshaft, gear-head hoist-type door operator unit consisting of electric motor, enclosed worm-gear running-in-oil primary drive, chain and sprocket secondary drive, and auxiliary chain-hoist and floor level disconnect.
- G. Electric Motors: Provide high-starting torque, reversible, continuous-duty, Class A insulated, electric motors, complying with NEMA MG 1, with overload protection, sized to start, accelerate, and operate door in either direction, from any position, at not less than 2/3 fps (0.2 m/s) or more than 1 fps (0.3 m/s), without exceeding nameplate ratings or considering service factor.
  - 1. Type: Polyphase, medium-induction type.
  - 2. Service Factor: According to NEMA MG 1, unless otherwise indicated.
  - 3. Coordinate wiring requirements and electric characteristics of motors with building electrical system.
  - 4. Provide totally enclosed, nonventilated or fan-cooled motors, fitted with plugged drain, and controller with NEMA ICS 6, Type 4 enclosure where indicated.
- H. Power requirements are 460V, 3-phase.
- I. Remote-Control Station: Provide momentary-contact, 3-button control station with push-button controls labeled "Open," "Close," and "Stop."
  - 1. Provide, full-guarded, standard-duty, surface-mounted, weatherproof type, NEMA ICS 6, Type 4 enclosure, key operated.
- J. Obstruction Detection Device: Provide each motorized door with indicated external automatic safety sensor able to protect full width of door opening. Activation of sensor immediately stops and reverses downward door travel.
  - 1. Sensor Edge: Provide each motorized door with an automatic safety sensor edge, located within astragal or weather stripping mounted to bottom bar. Contact with sensor immediately stops and reverses downward door travel. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable.
    - a. Provide electrically actuated automatic bottom bar.
- K. Limit Switches: Provide adjustable switches, interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.
- L. Provide electric operators with ADA-compliant audible alarm and visual indicator lights.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Install door and operating equipment complete with necessary hardware, jamb and head mold strips, anchors, inserts, hangers, and equipment supports according to Shop Drawings, manufacturer's written instructions, and as specified.
  - 1. Install fire-rated doors to comply with NFPA 80.

### 3.2 ADJUSTING

- A. Lubricate bearings and sliding parts; adjust doors to operate easily, free from warp, twist, or distortion and fitting weathertight for entire perimeter.

### 3.3 DEMONSTRATION

- A. Startup Services: Engage a factory-authorized service representative to perform startup services and to train Owner's maintenance personnel as specified below:
  - 1. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
    - a. Test door closing when activated by detector or alarm connected fire-release system. Reset door-closing mechanism after successful test.
  - 2. Train Owner's maintenance personnel on procedures and schedules related to startup and shutdown, troubleshooting, servicing, preventive maintenance, and procedures for testing and resetting release devices.
  - 3. Review data in the maintenance manuals.
  - 4. Schedule training with Owner with at least 7 days' advance notice.

**END OF SECTION 08331**